

**Remarks**

The Office Action dated July 12, 2006 has been carefully reviewed and the foregoing amendment has been made in consequence thereof.

Claims 1-15 are pending in this application. Claims 1-15 stand rejected.

The rejection of Claims 1-15 under 35 U.S.C. § 101 is respectfully traversed.

Independent Claim 1 has been amended to recite in part a method including "determining if a nuclear power generating system meets licensing requirements by: analyzing an event by a deterministic safety analysis methodology when the event has an event initiating frequency at or above the threshold value to produce an event analysis result; or analyzing an event by a probabilistic risk assessment methodology when the event has an event initiating frequency below the threshold value to produce an event analysis result; comparing the event analysis result to the defined acceptance criteria to determine if the nuclear power generating system meets licensing requirements; and outputting a comparison result that indicates if the nuclear power generating system meets licensing requirements". Applicant respectfully submits that the method recited in Claim 1 is directed to statutory subject matter. Particularly, the method recited in Claim 1 includes the step of determining if a nuclear power generating system meets licensing requirements by analyzing an event by a deterministic safety analysis methodology when the event has an event initiating frequency at or above the threshold value to produce an event analysis result or analyzing an event by a probabilistic risk assessment methodology when the event has an event initiating frequency below the threshold value to produce an event analysis result; comparing the event analysis result to the defined acceptance criteria to determine if the nuclear power generating system meets licensing requirements; and outputting a comparison result that indicates if the nuclear power generating system meets licensing requirements.

Applicant submits that the method is useful which produces a tangible and concrete result.

Independent Claims 6, and 11 have been amended similarly. Accordingly, Applicant submits that Claims 1-15 are directed to statutory subject matter and meet the requirements of 35 U.S.C. § 101.

For the reasons set forth above, Applicant respectfully requests that the Section 101 rejection of Claims 1-15 be withdrawn.

The rejection of Claims 1-15 under 35 U.S.C. § 103(a) as being unpatentable over Framework in view of McCalley and further in view of Poulter and NEI is respectfully traversed.

Framework was developed by the NRC and describes the development of the use of probabilistic risk assessment (PRA) to improve safety decision making and regulatory efficiency. However Framework does not address the subject of integrating PRA into deterministic analyses elements such as methodologies and acceptance criteria. The Framework does not describe nor suggest a systematic approach based on the probability of an event to determine if the event should be analyzed using the more rigorous deterministic approach or using the probabilistic risk assessment approach.

McCalley describes the benefits of using a probabilistic risk method of performing security assessment for bulk transmission systems. McCalley also describes the weaknesses in using deterministic methods to perform security assessment for bulk transmission systems. McCalley does not describe nor suggest a systematic approach based on the probability of an event to determine if the event should be analyzed using the more rigorous deterministic approach or using the probabilistic risk assessment approach. Rather, Applicant submits that McCalley teaches away from using deterministic methods to perform security assessment for bulk transmission systems.

Poulter describes some benefits for using Monte Carlo simulations in a probabilistic risk assessment method. Poulter also points out that there have been legal challenges to the use of probabilistic risk assessment methods. Poulter further points out further concerns by describing that Monte Carlo simulation and other probabilistic risk assessment "methods raise many policy and legal concerns which may be obscured by the complexity of the methods. These issues are only beginning to be explained in the probabilistic framework." Poulter does not describe nor suggest a systematic approach based on the probability of an event to determine if the event should be analyzed using the more rigorous deterministic approach or using the probabilistic risk assessment approach. Poulter does not describe nor suggest any specific method steps. Rather, Poulter describes the benefits of probabilistic risk assessment methods along with the legal uncertainty of using these methods.

NEI describes more benefits of using probabilistic risk assessment methods in place of more rigorous deterministic methods. NEI does not describe nor suggest a systematic approach based on the probability of an event to determine if the event should be analyzed using the more rigorous deterministic approach or using the probabilistic risk assessment approach. NEI does not describe nor suggest any specific method steps.

Claim 1 of the present application recites a method that includes " ordering events by an initiating event frequency; defining an initiating event frequency threshold value; defining acceptance criteria having an adjusted amount of conservatism, wherein the amount of conservatism is a function of the initiating event frequency; determining if an event has an event initiating frequency at or above the threshold value; determining if an event has an event initiating frequency below the threshold value; and determining if a nuclear power generating system meets licensing requirements by: analyzing an event by a deterministic safety analysis

methodology when the event has an event initiating frequency at or above the threshold value to produce an event analysis result; or analyzing an event by a probabilistic risk assessment methodology when the event has an event initiating frequency below the threshold value to produce an event analysis result; comparing the event analysis result to the defined acceptance criteria to determine if the nuclear power generating system meets licensing requirements; and outputting a comparison result that indicates if the nuclear power generating system meets licensing requirements."

Framework, McCalley, Poulter, and NEI, alone or in combination, do not describe nor suggest a method as recited in Claim 1. Particularly, Framework, McCalley, Poulter, and NEI, alone or in combination, do not describe nor suggest a method that includes determining if an event has an event initiating frequency at or above the threshold value, determining if an event has an event initiating frequency below the threshold value, and determining if a nuclear power generating system meets licensing requirements by analyzing an event by a deterministic safety analysis methodology when the event has an event initiating frequency at or above the threshold value to produce an event analysis result; or analyzing an event by a probabilistic risk assessment methodology when the event has an event initiating frequency below the threshold value to produce an event analysis result; comparing the event analysis result to the defined acceptance criteria to determine if the nuclear power generating system meets licensing requirements; and outputting a comparison result that indicates if the nuclear power generating system meets licensing requirements. Rather, Framework describes using PRA on one defined set of events and using the deterministic approach on a second defined set of events. The problem with the approach described in Framework is that some events are included in the deterministic analysis set even though the probability of the event occurring is highly unlikely, and some events are in the

PRA set even though the likelihood of the event is high enough that a deterministic treatment may be warranted. Applicant submits that the method recited in Claim 1 overcomes the shortcomings of Frameworks arbitrary assignment of assessment methodology by actively determining the event initiating frequency and determining if this event initiating frequency is over a threshold value before determining the assessment methodology that is used to determine if the licensing requirements are met. Applicant submits that the quotations cited from Framework in the Office Action do not describe nor suggest this novel aspect of Claim 1. The Office Action admits at page 6 that Framework "does not teach any preference for either the deterministic approach or the risk-based approach". Also, McCalley does not describe nor suggest a systematic approach based on the probability of an event to determine if the event should be analyzed using the more rigorous deterministic approach or using the probabilistic risk assessment approach. Rather, Applicant submits that McCalley **teaches away** from using deterministic methods to perform security assessment for bulk transmission systems. Further, Poulter does not describe nor suggest a systematic approach based on the probability of an event to determine if the event should be analyzed using the more rigorous deterministic approach or using the probabilistic risk assessment approach. Poulter does not describe nor suggest any specific method steps. Rather, Poulter merely describes the benefits of probabilistic risk assessment methods along with the legal uncertainty of using these methods. Furthermore, NEI does not describe nor suggest a systematic approach based on the probability of an event to determine if the event should be analyzed using the more rigorous deterministic approach or using the probabilistic risk assessment approach. NEI does not describe nor suggest any specific method steps.

As is well established, to establish a *prima facie* case of obviousness, the Examiner must satisfy three requirements. First, the prior art relied upon, coupled with the knowledge generally available in the art at the time of the invention, must contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or combine references. See *In re Fine*, 837 F.2d 1071, 1074, 5 U.S.P.Q.2d 1596, 1958 (Fed. Cir. 1988); *In re Skinner*, 2U.S.P.Q.2d 1788, 1790 (Bd. Pat. App. & Int. 1986). Second, the proposed modification of the prior art must have a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. See *Amgen, Inc. v. Chugai Pharm. Co.*, 927 F.2d 1200, 1209, 18 U.S.P.Q.2d 1016, 1023 (Fed. Cir. 1991); *In re Erlich*, 3 U.S.P.Q.2d 1011, 1016 (Bd. Pat. App. & Int. 1986). Lastly, the prior art reference or combination of references must teach or suggest all the limitations of the claims. See *In re Zurko*, 111 F.3d 887, 888-89, 42 U.S.P.Q.2d 1476, 1478 (Fed. Cir. 1997). And the teachings or suggestions, as well as the expectations of success, must come from the prior art, not applicant's disclosure.

Applicant submits that the teachings of McCalley, Poulter, and NEI add nothing to the teachings of Framework. McCalley, Poulter, and NEI merely discuss benefits and weaknesses of probabilistic risk assessment methods and deterministic assessment methods and do not teach additional method steps that can be added to Framework. Accordingly, there is no motivation to combine these references. The Office Action, at page 10, suggests that "[t]he motivation for combining the references would have been to determine the advantages and disadvantages of the deterministic and risk-based approaches. Applicant disagrees with this suggested motivation because it does not point one skilled in the art to a solution of the problems described in the current application, and in fact does not provide any motivation to combine the references. Applicant submits that the only motivation to combine these references is supplied by

Applicants' disclosure. Also, there is no showing of any expectation of success. Further, as described above, Framework modified by the teachings of McCalley, Poulter, and NEI do not teach or suggest all the limitations of the claims of the present application. Accordingly, Applicant submits that Claim 1 is patentable over Framework, McCalley, Poulter, and NEI, alone or in combination.

Claims 2-5 depend from independent Claim 1. When the recitations of dependent Claims 2-5 are considered in combination with the recitations of Claim 1, Applicant respectfully submits that Claims 2-5 likewise are patentable over Framework, McCalley, Poulter, and NEI, alone or in combination.

Independent Claim 6 recites a "system comprising a computer configured to: order events by an initiating event frequency; define an initiating event frequency threshold value; define acceptance criteria having an adjusted amount of conservatism, wherein the amount of conservatism is a function of the initiating event frequency; determine if an event has an event initiating frequency at or above the threshold value; determine if an event has an event initiating frequency below the threshold value; and determine if a nuclear power generating system meets licensing requirements by: analyzing an event by a deterministic safety analysis methodology when the event has an event initiating frequency at or above the threshold value to produce an event analysis result; or analyzing an event by a probabilistic risk assessment methodology when the event has an event initiating frequency below the threshold value to produce an event analysis result; comparing the event analysis result to the defined acceptance criteria to determine if the nuclear power generating system meets licensing requirements; and outputting a comparison result that indicates if the nuclear power generating system meets licensing requirements."

Framework, McCalley, Poulter, and NEI, alone or in combination, do not describe nor suggest a system as recited in Claim 6. Particularly, and at least for the reasons explained above, Framework, McCalley, Poulter, and NEI, alone or in combination, do not describe nor suggest a system comprising a computer configured to determine if an event has an event initiating frequency at or above the threshold value, determine if an event has an event initiating frequency below the threshold value, and determine if a nuclear power generating system meets licensing requirements by analyzing an event by a deterministic safety analysis methodology when the event has an event initiating frequency at or above the threshold value to produce an event analysis result; or analyzing an event by a probabilistic risk assessment methodology when the event has an event initiating frequency below the threshold value to produce an event analysis result; comparing the event analysis result to the defined acceptance criteria to determine if the nuclear power generating system meets licensing requirements; and outputting a comparison result that indicates if the nuclear power generating system meets licensing requirements.

Accordingly, Applicant submits that Claim 6 is patentable over Framework, McCalley, Poulter, and NEI, alone or in combination.

Claims 7-10 depend from independent Claim 6. When the recitations of dependent Claims 7-10 are considered in combination with the recitations of Claim 6, Applicant respectfully submits that Claims 7-10 likewise are patentable over Framework, McCalley, Poulter, and NEI, alone or in combination.

Independent Claim 11 recites a computer program embodied on a computer readable medium where the program includes "a code segment that: orders events by an initiating event frequency; defines an initiating event frequency threshold value; defines acceptance criteria having an adjusted amount of conservatism, wherein the amount of conservatism is a function of

the initiating event frequency; determines if an event has an event initiating frequency at or above the threshold value; determines if an event has an event initiating frequency below the threshold value; and determines if a nuclear power generating system meets licensing requirements by: analyzing an event by a deterministic safety analysis methodology when the event has an event initiating frequency at or above the threshold value to produce an event analysis result; or analyzing an event by a probabilistic risk assessment methodology when the event has an event initiating frequency below the threshold value to produce an event analysis result; comparing the event analysis result to the defined acceptance criteria to determine if the nuclear power generating system meets licensing requirements; and outputting a comparison result that indicates if the nuclear power generating system meets licensing requirements."

Framework, McCalley, Poulter, and NEI, alone or in combination, do not describe nor suggest a computer program as recited in Claim 11. Particularly, and at least for the reasons explained above, Framework, McCalley, Poulter, and NEI, alone or in combination, do not describe nor suggest a computer program embodied on a computer readable medium that includes " a code segment that: orders events by an initiating event frequency; defines an initiating event frequency threshold value; defines acceptance criteria having an adjusted amount of conservatism, wherein the amount of conservatism is a function of the initiating event frequency; determines if an event has an event initiating frequency at or above the threshold value; determines if an event has an event initiating frequency below the threshold value; and determines if a nuclear power generating system meets licensing requirements by: analyzing an event by a deterministic safety analysis methodology when the event has an event initiating frequency at or above the threshold value to produce an event analysis result; or analyzing an event by a probabilistic risk assessment methodology when the event has an event initiating

frequency below the threshold value to produce an event analysis result; comparing the event analysis result to the defined acceptance criteria to determine if the nuclear power generating system meets licensing requirements; and outputting a comparison result that indicates if the nuclear power generating system meets licensing requirements." Accordingly, Applicant submits that Claim 11 is patentable over Framework, McCalley, Poulter, and NEI, alone or in combination.

Claims 12-15 depend from independent Claim 11. When the recitations of dependent Claims 12-15 are considered in combination with the recitations of Claim 11, Applicant respectfully submits that Claims 12-15 likewise are patentable over Framework, McCalley, Poulter, and NEI, alone or in combination.

For the reasons set forth above, Applicants respectfully request that the Section 103(a) rejection of Claims 1-15 be withdrawn.

In view of the foregoing amendments and remarks, all the claims now active in this application are believed to be in condition for allowance. Favorable action is respectfully solicited.

Respectfully submitted,



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Michael Tersillo  
Registration No. 42,180  
ARMSTRONG TEASDALE LLP  
One Metropolitan Square, Suite 2600  
St. Louis, Missouri 63102-2740  
(314) 621-5070